

CLAIMS

1. A buoyancy-driven power generation system comprising:
a plurality of magnet capsules;
a containment loop, said loop comprising a buoyancy section
and a gravitational section;
5 said buoyancy section comprising a lower elevation portion and
an upper elevation portion;
said gravitational section comprising a capsule holding section
and a slide-and-fall section;
10 a capsule injector operative to receive a magnet capsule from
said slide-and-fall section and introduce said magnet capsule into said
buoyancy section; and
a coil configured to allow passage of said magnet capsules
therethrough;
55 whereby movement of said magnet capsule through said coil
generates electric power.

2. The buoyancy-driven power generation system of claim 1
wherein said capsule injector comprises a first gate and a second gate.

3. The buoyancy-driven power generation system of claim 1
20 wherein said capsule injector comprises a first chamber, first ball valve,
second chamber, and a second ball valve.

4. A method of generating electric power, said method comprising:
introducing a magnet capsule into a first portion of a
containment loop;
25 allowing said magnet capsule to move within said first portion
due to buoyancy force; and
inducing electric power through the movement of said magnet
capsule through said first portion.

5. The method of generating electric power of claim 4 wherein said first portion is filled with fluid.

6. The method of generating electric power of claim 4, further comprising the act of placing said magnet capsule in a capsule injector.

5 7. The method of generating electric power of claim 4 wherein said capsule is moved through at least a second portion of said loop via gravity.

8. The method of generating electric power of claim 7 wherein said magnet capsule is pushed via the collective weight of a plurality of magnet capsules.

9. A method of generating electric power, said method comprising:
10 providing an elongated tube, at least one portion of said tube containing fluid;
15 providing at least one coil module proximate at least one portion of said tube;
introducing a magnet capsule to said fluid filled portion;
allowing said magnet capsule to move through said fluid filled portion due to buoyancy force; and
inducing electric power through the movement of said magnet capsule proximate said coil module in proximity to a non-filled portion of pipe.

20 10. An apparatus for generating electric power using buoyancy, said apparatus comprising:

a containment loop;
a liquid filled portion of said loop having a lower elevation portion and a higher elevation portion;
25 a plurality of coil modules surrounding said liquid filled portion;
and
a plurality of buoyant magnet capsules operative to move from said lower elevation portion to said higher elevation portion.

10
15

11. The apparatus for generating electric power of claim 10, further comprising a substantially non-filled portion of said loop connected with said liquid filled portion of pipe.

5 12. The apparatus for generating electric power of claim 11 wherein said non-liquid filled portion is connected with said higher elevation portion.

13. The apparatus for generating electric power of claim 10, further comprising a capsule injector connected with said lower elevation portion.

14. The apparatus for generating electric power of claim 10, further comprising a refill pipe connected with said liquid filled portion.

10 15. A capsule injector for a buoyancy driven system for generating electric power, comprising:

an enclosed area having a first gate and a second gate, said area operable to fully contain a magnet capsule;

said first gate having an elevation lower than said second gate and being operative to receive a capsule from a waiting area containing at least one capsule;

said second gate having an elevation higher than said second gate and being operative to allow liquid to enter said enclosed area;

20 16. A capsule injector for a buoyancy driven system for generating electric power, comprising:

a first chamber containing liquid and a first ball;

a second chamber containing liquid and a second ball; and

an electric valve for transferring fluid between said first chamber and said second chamber.

25 17. A magnet capsule for use in a buoyancy driven system, comprising:

a magnet;

a low density material surrounding said magnet; and

a casing surrounding said magnet and low density material;
wherein said magnet capsule is buoyant in a liquid filled space.

18. A method of generating electric power, said method comprising:
providing at least one buoyant magnetic capsule and at least

5 one coil;

introducing said capsule into a lower portion of a fluid-filled area;
allowing said magnetic capsule to rise through said fluid; and
directing said capsule proximate said coil to induce current flow
in said coil.

10 19. The method of claim 18 further comprising the act of returning
said capsule to a lower portion via gravity.

20. The method of claim 19 further comprising the act of providing a
first flowpath for said capsule through said fluid and proximate said coil.

15 21. The method of claim 20 wherein said flowpath further comprises
a tubular member at least partially filled with a fluid.

22. The method of claim 21 further comprising the act of providing a
second flowpath for said capsule to said lower portion of said fluid.

23. The method of claim 22 wherein said first and second flowpaths
are connected together to form a continuous loop.

10
15